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A Review of the Spider Genus *Cyrioctea* (Araneae, Zodariidae)

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ABSTRACT

Spiders of the genus *Cyrioctea* are easily recognized by the transverse series of spines found between the anterior and posterior eye rows, but they do not seem to be closely related to *Leprolochus*, another Neotropical genus with similar (but differently placed) cephalic spines. Five species are

recognized, all from Chile and Argentina. The male of the type species, *C. spinifera* (Nicolet), is described for the first time, and three new species (*C. cruzi*, *C. mauryi*, and *C. calderoni*) are described from northern Chile.

INTRODUCTION

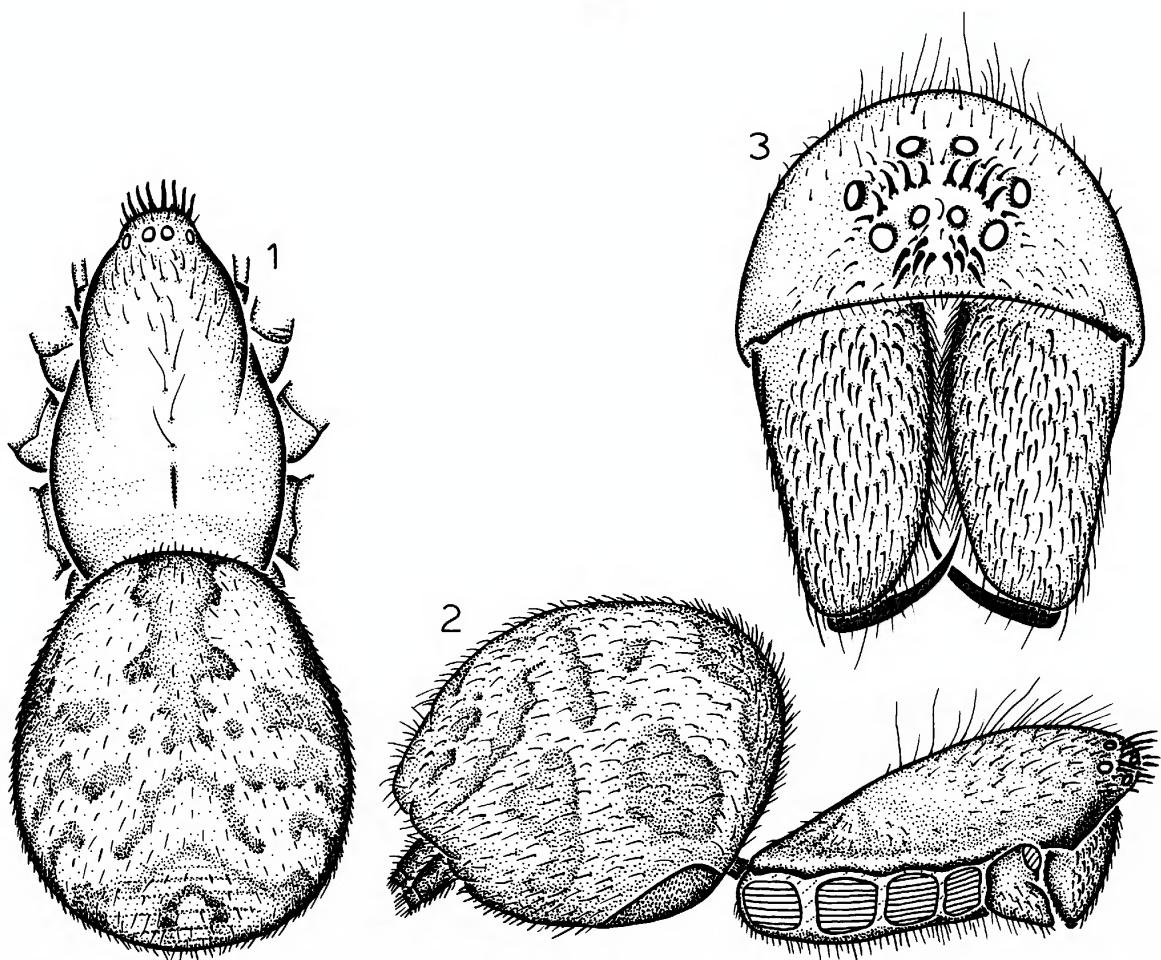
The remarkable spiders of the genus *Cyrioctea* were first described by Nicolet (1849), who pointed out the peculiar transverse series of spines found on their cephalothorax, between the anterior and posterior eye rows (figs. 1-3). The familial placement of the genus has varied over the years. Originally considered a gnaphosid by Nicolet, *Cyrioctea* was assigned by Simon (1889, 1898) to the Agelenidae, where it remained until Roth (1965) transferred it to the Zodariidae.

Zodariids are a relatively little studied and poorly defined group, and the limits of the family are far from well-established. Recently, Jocqué (1986) made the first attempt to

identify a synapomorphy for the group, suggesting that the placement of the teeth on the inner edge of the superior tarsal claws, rather than medially on those claws, might provide a defining character. He noted the presence of this feature in quite a number of (mostly African) genera. It remains to be seen how well this character will work on a worldwide basis; the same is true for a number of other unusual features of the family, including the absence of a serrula (stressed by Davies, 1985), the generally reduced number of cheliceral teeth, and the highly elevated clypeus.

Cyrioctea does not have the laterally displaced superior claw teeth characteristic of

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Figs. 1-3. *Cyriocaea spinifera* (Nicolet), female. 1. Cephalothorax and abdomen, dorsal view. 2. Same, lateral view. 3. Carapace and chelicerae, anterior view.

the African genera, but its placement in the Zodariidae is nonetheless supported (at least for the time being) by the absence of a serrula, the elevated (but anteriorly produced) clypeus, the reduced median and posterior spinnerets, and the genitalic structure.

Given our uncertainty about the composition of the group, it is hardly surprising that no suggestions have been made regarding the relationships of *Cyriocaea* to other zodariids. Even though he placed them in different families, Simon (1898) pointed out the similarity between *Cyriocaea* and another American zodariid genus, *Leprolochus* Simon (1893a). Species of that genus, which are found from Panama and Trinidad south to Argentina (but not recorded, to date, from Chile), have similarly bizarre headgear, with a transverse row

of spines much like those found in *Cyriocaea* (see Chickering, 1957, figs. 1, 2, 5). The two genera are easily separated by the placement of the spine row, however; whereas in *Cyriocaea* the spine row occurs between the anterior and posterior eyes, in *Leprolochus* the spine row occurs in front of the anterior eyes. Also, in *Leprolochus* the clypeus is high and vertical, in typical zodariid fashion, rather than sloping and produced anteriorly. Although it would be tempting to regard these two genera as sister groups, their genitalic structure indicates that this hypothesis is probably incorrect. The palpi of *Cyriocaea* resemble those of other temperate South American zodariids, such as the possibly synonymous genera *Cybaeodamus* Mello-Leitão (1938) and *Valcheta* Mello-Leitão (1940),

whereas those of *Leprolochus* are very differently constructed. Simon (1893b) placed *Leprolochus* as a close relative of the Oriental genus *Sufficia* Simon (1893c), but that genus is too poorly known to permit an appraisal of this hypothesis (Brignoli, 1982).

The habits of *Cyrioctea* are also rather poorly known but seem to resemble those of many other American zodariid genera. Most specimens have been taken in coastal sand dunes. I have found them living in the top few centimeters of sand on dunes, even on hot summer afternoons; evidently these spiders have a high heat tolerance. The shape of the carapace suggests that the cephalic spines are used in burrowing into the sand.

Other specimens of *Cyrioctea* taken in inland localities also seem to prefer sandy or dry areas. Juveniles collected in Catamarca province, Argentina, by Sr. Pablo A. Goloboff were found in silk tubes, ranging from 2 to 6 cm long and resembling those of some mygalomorphs, placed in loose, dry soil in the upper portion of a 4–5 m high, vertical, dry streambank.

In addition to material in the American Museum of Natural History (AMNH), specimens were kindly made available by: Drs. E. A. Maury and M. E. Galiano of the Museo Argentino de Ciencias Naturales, Buenos Aires (MACN), Dr. J. Heurtault of the Muséum National d'Histoire Naturelle, Paris (MNHN), Dr. A. Camousseight M. of the Museo Nacional de Historia Natural, Santiago (MNS), and Dr. E. I. Schlinger of the University of California at Berkeley (UCB). Helpful comments on a draft of the manuscript were received from Drs. R. Jocqué of the Musée Royal de l'Afrique Centrale, Tervuren, and C. D. Dondale of the Biosystematics Research Institute, Ottawa. The format of the descriptions follows that of Platnick and Shadab (1975); all measurements are in millimeters. This project was supported by grants no. BSR-8312611 and BSR-8406225 from the National Science Foundation.

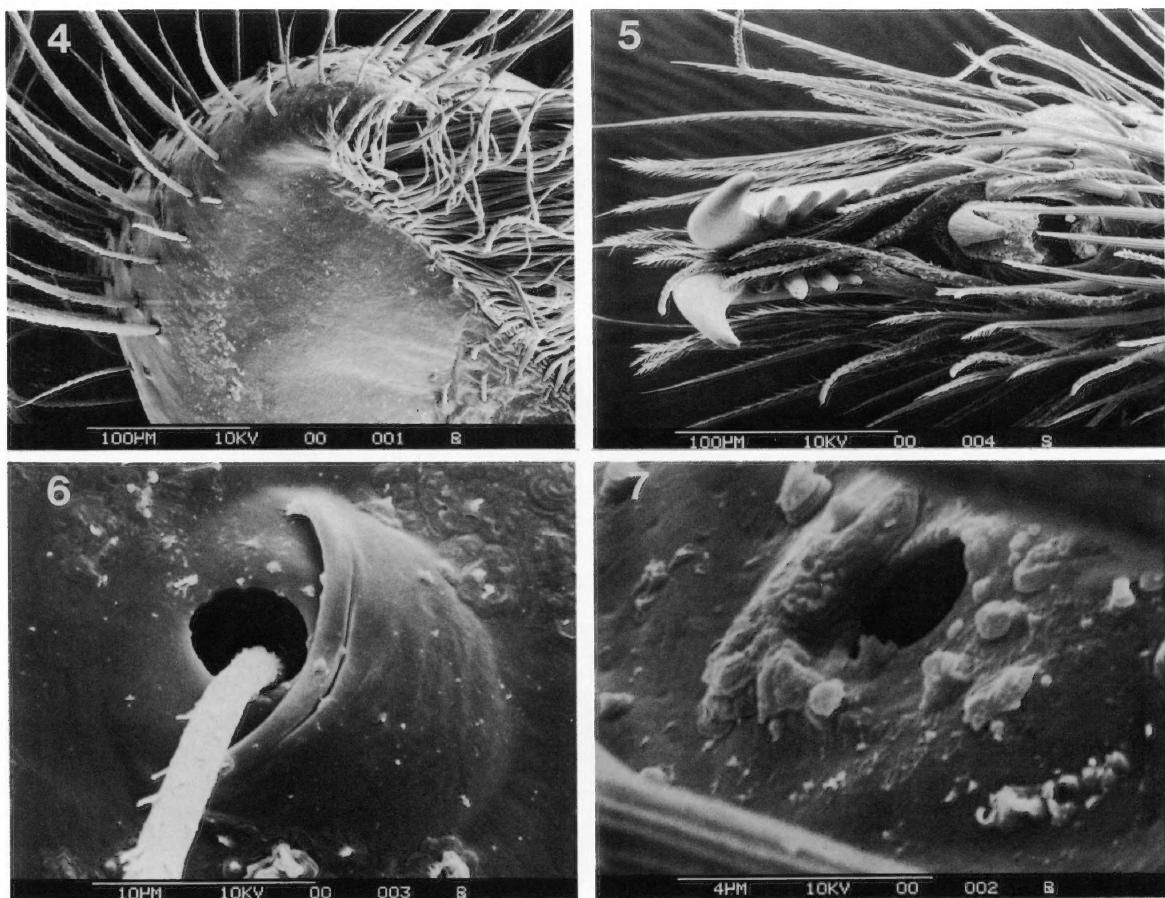
Cyrioctea Simon

Cyrioctea Simon, 1889, p. 219 (type species by original designation *Drassus spinifer* Nicolet).

DIAGNOSIS: Specimens of *Cyrioctea* can be recognized easily by the transverse series of

spines situated between the anterior and posterior eye rows (figs. 1–3).

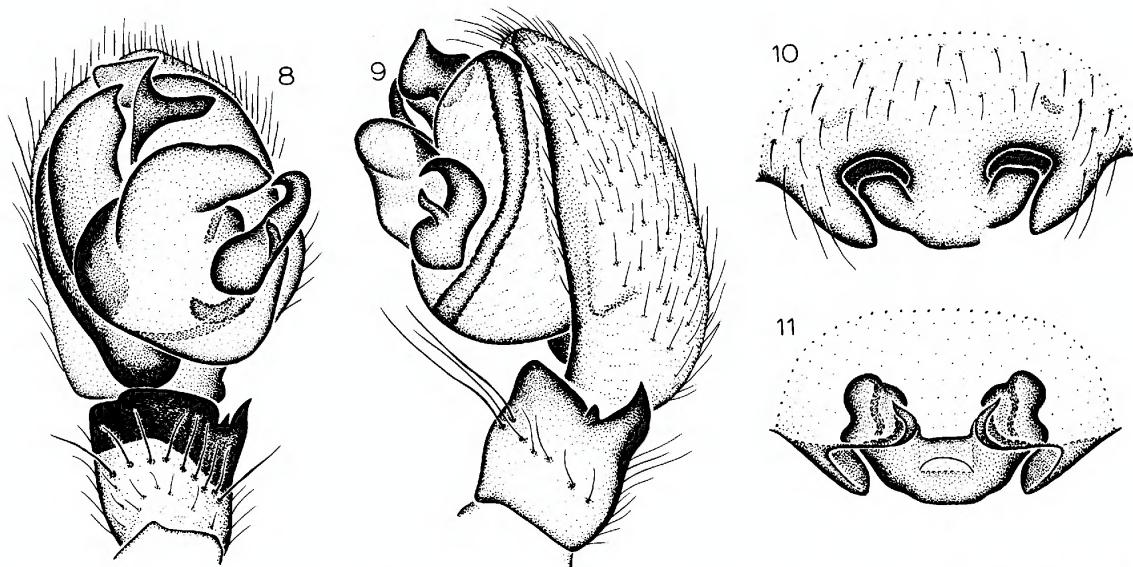
DESCRIPTION: Medium-size spiders, total length ca. 4–6 mm. Carapace elongate, oval, widest between coxae II and III, narrowed in front to less than half its maximum width in males, to about two-thirds its maximum width in females; ocular area narrowed further, protruding anterior of clypeus, which slopes posteriorly toward venter (figs. 1–3); anterior eye row on pronounced lobe bordered dorsally by transverse row of six (up to eight in males, ten in females, of *C. spinifera*) stout, dorsoventrally flattened spines, ventral edge of pronounced lobe with about four weaker spines under each AME; surface light brown with postocular portion of pars cephalica lightest, lateral edges of pars thoracica narrowly (of pars cephalica widely) darkened; pars thoracica with three pairs of triangular dark markings about halfway between long, longitudinal thoracic groove and lateral margins; from above, anterior eye row recurved, posterior row almost straight; from front, both rows procurved; AME circular, dark, PME circular, light, ALE and PLE oval, light; AME smaller than other, subequal eyes; AME separated by more than their diameter, by less than their diameter from ALE; PME separated by twice their diameter, slightly farther from PLE; ALE and PLE separated by almost their diameter; MOQ longer than wide, wider in back than in front; clypeal height at AME twice their diameter; chilum (see Jocqué, 1986, p. 8) indistinct. Chelicerae brown, vertical, with slight lateral boss, anterior surface coated with short, denticle-like spines in males, spines longer in females; promargin with three teeth, of which middle one is largest; retromargin with single tooth situated slightly distal to most distal promarginal tooth; cheliceral gland opening through pores on surface of retromargin; fang relatively short, scarcely mobile. Endites light brown, subquadrate, slightly convergent, somewhat rounded posterolaterally, triangular anteriorly, with anteromedian scopula, without serrula (fig. 4). Labium dark brown, slightly wider than long, strongly rebordered. Sternum light brown, domed, almost as wide as long, without sclerotized extensions to or between coxae; coxae IV almost contiguous. Leg formula 4123. Typical leg spination pat-



Figs. 4-7. *Cyriocaea spinifera* (Nicolet), female. 4. Endite, anterior view, showing absence of serrula. 5. Claws of leg II, ventral view, showing medial insertion of teeth on superior claws. 6. Trichobothrial base from tibia II, dorsal view. 7. Tarsal organ from leg I, dorsal view.

tern for males (only surfaces bearing spines listed): femora: I d1-1-1, p0-1-1, r0-1-1; II d1-2-1, p0-1-1, r0-2-1; III, IV d1-1-1, p1-1-1, r0-1-1; patellae III, IV d1-0-1, p0-2-0, r0-1-0; tibiae: I p1-1-1, v2-2-2; II p1-1-1, v1p-2-2; III d1-2-1, p1-1-1, v1p-2-2, r0-1-1; IV d1-1-1, p1-1-1, v2-2-2, r0-1-1; metatarsi: I p0-1-1, v2-2-2, r0-1-1; II p1-1-2, v2-2-2, r0-1-1; III d1-1-0, p2-3-2, v2-2-2, r1-2-2; IV d1-1-0, p3-4-2, v2-4-2, r1-2-2; females with fewer spines, particularly on anterior legs. Legs yellow, femora with proximal and distal (tibiae with distal) ventral dark spots; tarsi with very weak scopulae, superior claws with about five teeth originating from ventral edge of claw (fig. 5), inferior claw small, unarmed; tarsi III, IV with two pairs of ventral, subdistal, stiffened bristles; claw tufts absent; tro-

chanters III, IV broadly invaginated distoventrally but not notched; metatarsi without preening combs; trichobothria in double row on tibiae, single row on metatarsi and tarsi, bothria with long, crescent-shaped ridge (fig. 6); tarsal organ capsulate (fig. 7). Abdomen white with brownish gray reticulations (fig. 1), without dorsal scutum; six spinnerets, all with spigots, anteriors long, two-segmented, distal segment very short, medians short, narrow, posteriors about two-thirds as long as anteriors, two-segmented, distal segment very short; colulus represented only by transverse row of stiff setae. Male palp with femur and patella unmodified, tibia short, with retrolateral apophysis, cymbium invaginated at base on retrolateral side, bulging distally to invagination; subtegulum massive, tegulum



Figs. 8–11. *Cyrioctea spinifera* (Nicolet). 8. Palp, ventral view. 9. Palp, retrolateral view. 10. Epigynum, ventral view. 11. Epigynum, dorsal view.

protruding ventrally, bearing prolateral embolus, distal conductor, and retrolaterally situated median and terminal apophyses. Female palp with spinose tibia and tarsus, claw dentate. Epigynum with protruding median scape.

Cyrioctea spinifera (Nicolet)
Figures 1–11

Drassus spinifer Nicolet, 1849, p. 454 [female holotype supposedly from Valdivia, Provincia de Valdivia, Region de los Lagos (X), Chile, in MNHN, examined].

Cyrioctea spinifera: Simon, 1889, p. 219; 1898, pp. 239, 246. Porter, 1920a, p. 57; 1920b, p. 27. Roth, 1965, p. 290.

DIAGNOSIS: Males can be recognized by the bifid retrolateral tibial apophysis and long spur on the median apophysis (fig. 9), females by the shape of the epigynal scape (figs. 10, 11).

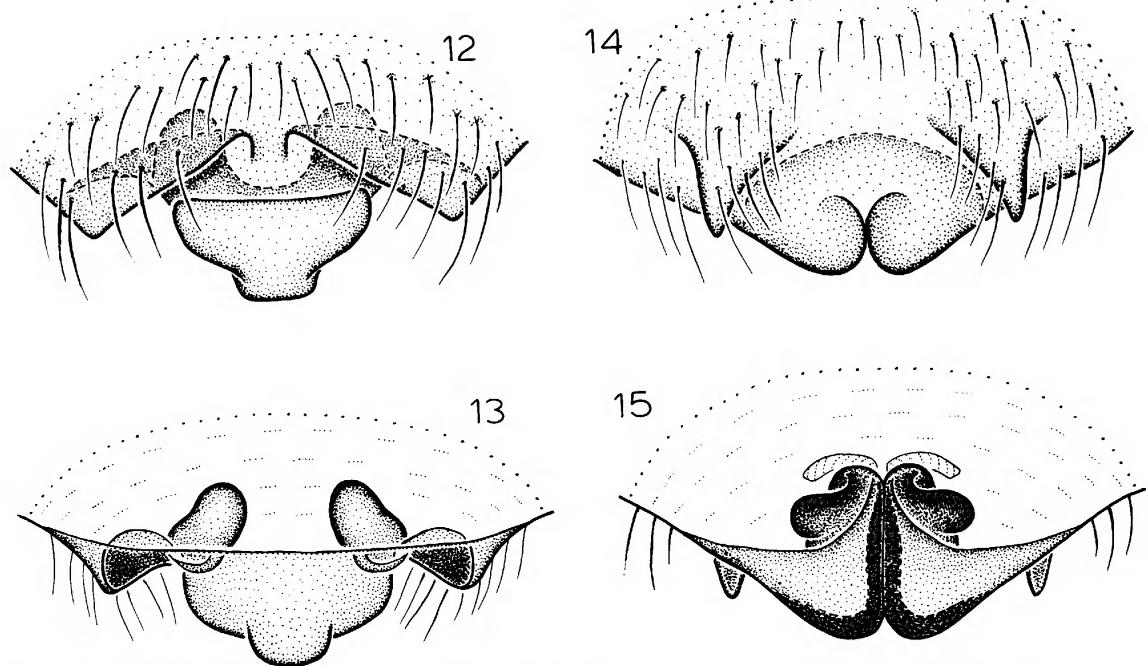
MALE: Total length 4.25. Carapace 2.47 long, 1.62 wide. Femur II 1.74 long. Eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.05, PLE 0.08; AME-AME 0.08, AME-ALE 0.03, PME-PME 0.12, PME-PLE 0.11, ALE-PLE 0.04. MOQ length 0.24, front width 0.20, back width 0.22. Embolus relatively short, wide (fig. 8); retrolateral tibial

apophysis bifid (fig. 9). Leg spination typical for genus.

FEMALE: Total length 4.46. Carapace 2.41 long, 1.57 wide. Femur II 1.30 long. Eye sizes and interdistances: AME 0.07, ALE 0.09, PME 0.07, PLE 0.09; AME-AME 0.09, AME-ALE 0.03, PME-PME 0.10, PME-PLE 0.14, ALE-PLE 0.05. MOQ length 0.28, front width 0.23, back width 0.24. Lateral epigynal margins finger-shaped (fig. 10), scape wide (fig. 11). Leg spination: femora: I p0-0-0, r0-0-0; II d1-1-1, p0-0-0, r0-0-0; III p0-1-1, r0-0-1; IV d0-1-1, p0-0-1, r0-0-0; tibiae: I p0-0-0, v0-0-0; II p0-1-0, v0-0-0; III, IV v1p-1p-1p; metatarsi: I p0-0-0, v0-0-0, r0-0-0; II p0-1-0, v0-0-0, r0-0-0; II d1-0-0, v1p-1p-1p, r1-1-1; IV p2-3-2, v1p-1p-1p, r1-1-2.

MATERIAL EXAMINED: CHILE: **Region de Coquimbo (IV):** *Provincia de Elqui*: Coquimbo, July 1, 1966, sand dunes (M. E. Irwin, UCB), 1♂, 1♀. *Provincia de Choapa*: Los Vilos, Aug. 25, 1966 (E. I. Schlinger, M. E. Irwin, UCB), 1♀, Sept. 25, 1966 (E. I. Schlinger, UCB), 1♀; 7 km N Los Vilos, Aug. 16, 1966 (E. I. Schlinger, M. E. Irwin, UCB), 2♂, 6♀; N Pichidangui, Feb. 9, 1986, coastal dunes, elev. 10 m (N. I. Platnick, R. T. Schuh, AMNH), 1♀.

DISTRIBUTION: All known modern specimens are from the Coquimbo region of north-



Figs. 12-15. 12, 13. *Cyriocaea cruz*, new species. 14, 15. *C. mauryi*, new species. 12, 14. Epigynum, ventral view. 13, 15. Epigynum, dorsal view.

ern Chile. The holotype is supposedly from Valdivia, far to the south of these localities. Porter (1920a, 1920b) recorded specimens from intermediate localities (Quilpué in Valparaíso, Termas de Chillán in Ñuble, and Talcahuano in Concepción), but his material has been lost and may well have included representatives of species other than *C. spinifera*.

Cyriocaea cruz, new species

Figures 12, 13

TYPE: Female holotype taken in a coastal sand dune at an elevation of 5 m on a beach south of Cruz Grande, Provincia de Elqui, Region de Coquimbo (IV), Chile (February 7, 1986; N. I. Platnick and R. T. Schuh), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females can be recognized by the elevated lateral epigynal margins and posteriorly narrowed epigynal scape (fig. 12).

MALE: Unknown.

FEMALE: Total length 4.09. Carapace 1.91 long, 1.22 wide. Femur II 0.95 long. Eye sizes

and interdistances: AME 0.05, ALE 0.06, PME 0.05, PLE 0.07; AME-AME 0.08, AME-ALE 0.03, PME-PME 0.09, PME-PLE 0.12, ALE-PLE 0.06. MOQ length 0.25, front width 0.18, back width 0.19. Lateral epigynal margins greatly elevated (fig. 12), scape abruptly narrowed posteriorly (fig. 13). Leg spination: femora: I, II d1-1-0, p0-0-0, r0-0-0; III d1-0-0, p0-0-1, r0-0-0; IV d0-0-0, p0-0-0, r0-0-0; tibiae: I, II p0-0-0, v0-0-0; III, IV v1p-1p-1p; metatarsi: I, II p0-0-0, v0-0-0, r0-0-0; III d0-0-0, p1-2-2, v1p-0-1p, r1-1-2; IV d0-0-0, p1-2-2, v1p-1p-1p, r1-1-1.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from northern Coquimbo, Chile.

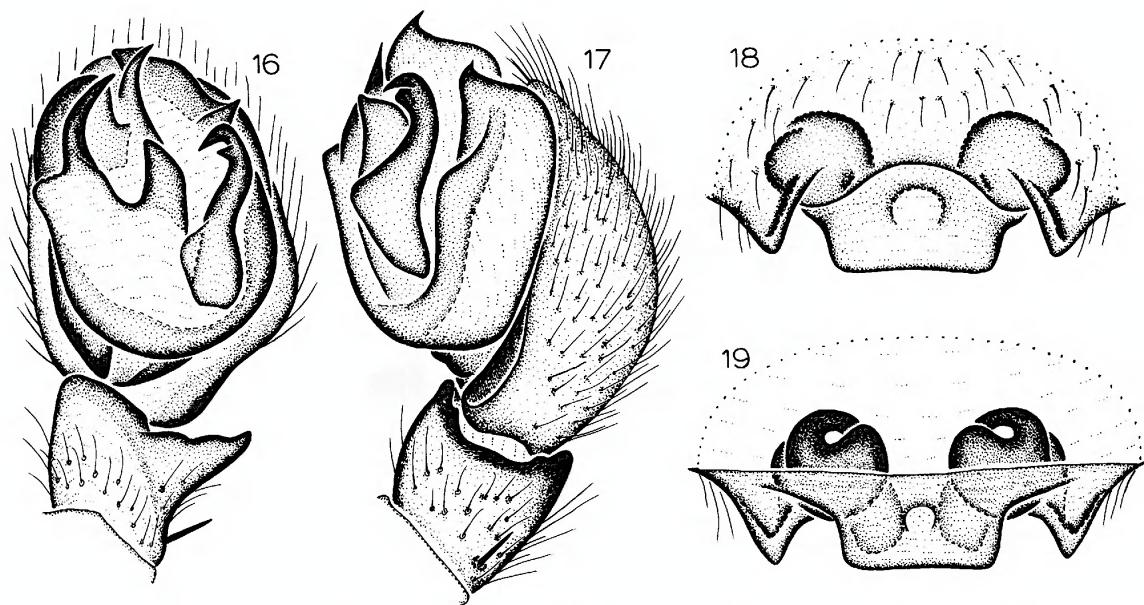
Cyriocaea mauryi, new species

Figures 14, 15

TYPE: Female holotype taken 10 km south of Coquimbo, Provincia de Elqui, Region de Coquimbo (IV), Chile (October 3, 1983; E. A. Maury), deposited in MACN.

ETYMOLOGY: The specific name is a patronym in honor of the collector of the holotype.

DIAGNOSIS: Females can be recognized eas-



Figs. 16-19. *Cyrioctea calderoni*, new species. 16. Palp, ventral view. 17. Palp, retrolateral view. 18. Epigynum, ventral view. 19. Epigynum, dorsal view.

ily by their closely spaced spermathecae (fig. 15).

MALE: Unknown.

FEMALE: Total length 4.07. Carapace 1.80 long, 1.08 wide. Femur II 0.86 long. Eye sizes and interdistances: AME 0.05, ALE 0.06, PME 0.05, PLE 0.06; AME-AME 0.06, AME-ALE 0.02, PME-PME 0.11, PME-PLE 0.06, ALE-PLE 0.06. MOQ length 0.24, front width 0.16, back width 0.21. Lateral epigynal margins directed posteriorly (fig. 14), spermathecae approximate (fig. 15). Leg spination: femora: I, II d1-1-0, p0-0-0, r0-0-0; III d1-0-0, p0-0-1, r0-0-0; IV d0-0-0, p0-0-0, r0-0-0; tibiae: I, II p0-0-0, v0-0-0; III d1-1-1, v1p-1p-1p, r0-0-1; IV v1p-1p-1p, r0-0-1; metatarsi: I, II p0-0-0, v0-0-0, r0-0-0; III p1-1-1, v1p-1p-1p, r1-1-1; IV d1-1-1, p1-3-2, v1p-1p-1p, r1-1-1.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from Coquimbo, Chile.

Cyrioctea calderoni, new species

Figures 16-19

TYPE: Male holotype from trap in burned area at Palmas de Ocoa, Parque Nacional La Campana, Provincia de Quillota, Region de

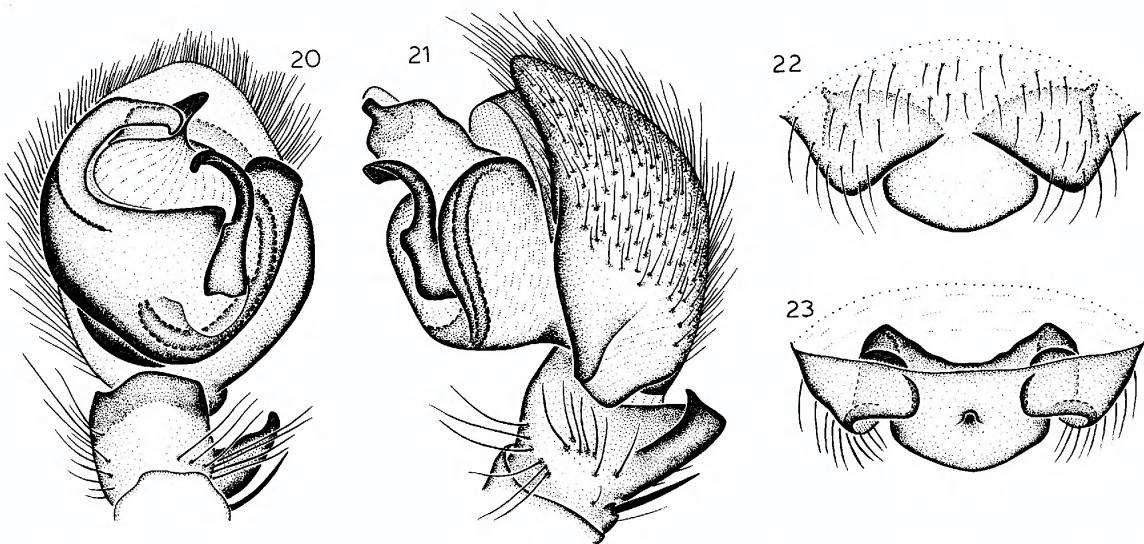
Valparaíso (V), Chile (June 22, 1984; R. Calderón G.), deposited in MNS.

ETYMOLOGY: The specific name is a patronym in honor of the collector of the holotype.

DIAGNOSIS: Males can be recognized by the laterally directed retrolateral tibial apophysis and elongate median apophysis (figs. 16, 17), females by the rectangular epigynal scape (fig. 18).

MALE: Total length 3.94. Carapace 2.08 long, 1.25 wide. Femur II 1.28 long. Eye sizes and interdistances: AME 0.06, ALE 0.06, PME 0.07, PLE 0.07; AME-AME 0.06, AME-ALE 0.02, PME-PME 0.09, PME-PLE 0.07, ALE-PLE 0.05. MOQ length 0.25, front width 0.18, back width 0.23. Median apophysis elongate, more than half length of bulb (fig. 16), retrolateral tibial apophysis short, entire, laterally directed, tibia with basal spine (fig. 17). Leg spination: femora: I p0-0-1; II d1-1-1, p0-0-1, r1-1-1; III p0-1-1, r2-1-1; IV r2-1-1; tibiae: I v0-2-2, r1-0-1; II v1r-2-2, r1-0-1; III d1-1-1, v2-2-2; IV v1p-2-2; metatarsi: I p1-1-2; II p1-2-2, r1-1-1; III p1-2-2, r0-2-1; IV p2-3-2.

FEMALE: Total length 4.23. Carapace 2.07 long, 1.26 wide. Femur II 1.15 long. Eye sizes and interdistances: AME 0.06, ALE 0.06, PME 0.07, PLE 0.09; AME-AME 0.07,



Figs. 20-23. *Cyrioctea aschaensis* Schiapelli and Gerschman. 20. Palp, ventral view. 21. Palp, retrolateral view. 22. Epigynum, ventral view. 23. Epigynum, dorsal view.

AME-ALE 0.03, PME-PME 0.06, PME-PLE 0.11, ALE-PLE 0.08. MOQ length 0.29, front width 0.19, back width 0.20. Lateral epigynal margins triangular (fig. 18), epigynal scape rectangular (fig. 19). Leg spination: femora: I, II d0-1-0, p0-0-0, r0-0-0; III d0-0-0, p0-0-2, r0-0-0; IV d0-0-0, p0-0-1, r0-0-0; patella III d0-0-1; tibiae: I, II p0-0-0, v0-0-0; III d1-1-0, v1p-1p-1p, r0-0-1; IV v1p-1p-1p, r0-0-1; metatarsi: I, II p0-0-0, v0-0-0, r0-0-0; III d0-1-1, p1-1-1, v1p-1p-2, r1-1-2; IV d0-1-1, p1-1-2, v1p-1p-1p, r1-1-1.

OTHER MATERIAL EXAMINED: CHILE: **Region de Valparaíso (V): Provincia de Quillota:** Palmas de Ocoa, Parque Nacional La Campana, traps in burned areas, June 22-July 20, 1984 (R. Calderón G., AMNH), 4♂. **Provincia de Valparaíso:** 5 km N Algarrobo, Oct. 12, 1966, coastal dunes (E. I. Schlinger, UCB), 1♀. **Region Metropolitana de Santiago: Provincia de Santiago:** Valle del Río Mapocho, between El Arrayán and Farellones, Oct. 1958, elev. 700-800 m, pitfall traps (W. Noodt, MNS), 1♂, 1♀, June 1959, elev. 550 m, pitfall trap (W. Noodt, MNS), 1♂.

DISTRIBUTION: Valparaíso and Santiago, Chile.

Cyrioctea aschaensis
Schiapelli and Gerschman
Figures 20-23

Cyrioctea aschaensis Schiapelli and Gerschman, 1942, p. 322, fig. 9, pl. 1 (male holotype from

Campo Ascha, Arauco, La Rioja, Argentina, in MACN, examined). Gerschman and Schiapelli, 1948, p. 10, fig. 10.

DIAGNOSIS: Males resemble those of *C. calderoni* in having a spine on the palpal tibia, but can be distinguished by the proximally displaced retrolateral tibial apophysis (figs. 20, 21); females can be recognized by the shape of the epigynal scape, which appears oval in ventral view (figs. 22, 23).

MALE: Described by Schiapelli and Gerschman (1942).

FEMALE: Described by Gerschman and Schiapelli (1948).

MATERIAL EXAMINED: ARGENTINA: **Cordóba:** La Falda, Feb. 1963 (Viana, MACN), 1♂. **La Rioja:** Campo Ascha, Arauco (J. A. Cáceres F., MACN), 1♂ (holotype), 1♀ ("allotype").

DISTRIBUTION: Cordóba and La Rioja, Argentina.

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